



LED Lighting Conversion

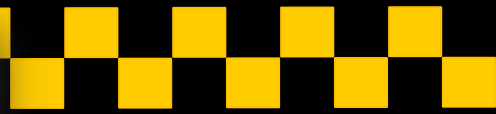


Alaska Museums Web Chat

March 2011

Alaska Aviation Museum



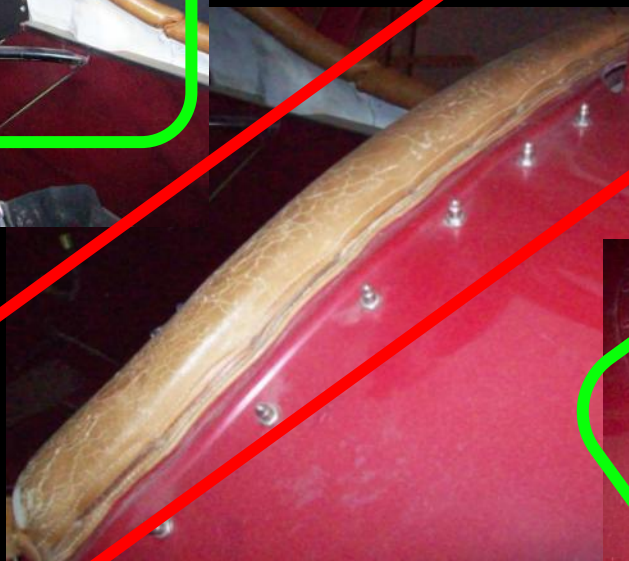


Why Green?

- ◆ To Honor, **Preserve**, & Display in order to Educate and Inspire
 - Protect Stearman Rear Cockpit Combing
 - 64° @ floor versus 123° @ ceiling
- ◆ Organizational **Sustainability**
 - \$ for projects/exhibits
 - Utilities funding not very sexy



1928 Stearman C2B



Note damage to leather from excessive Heat & UV.

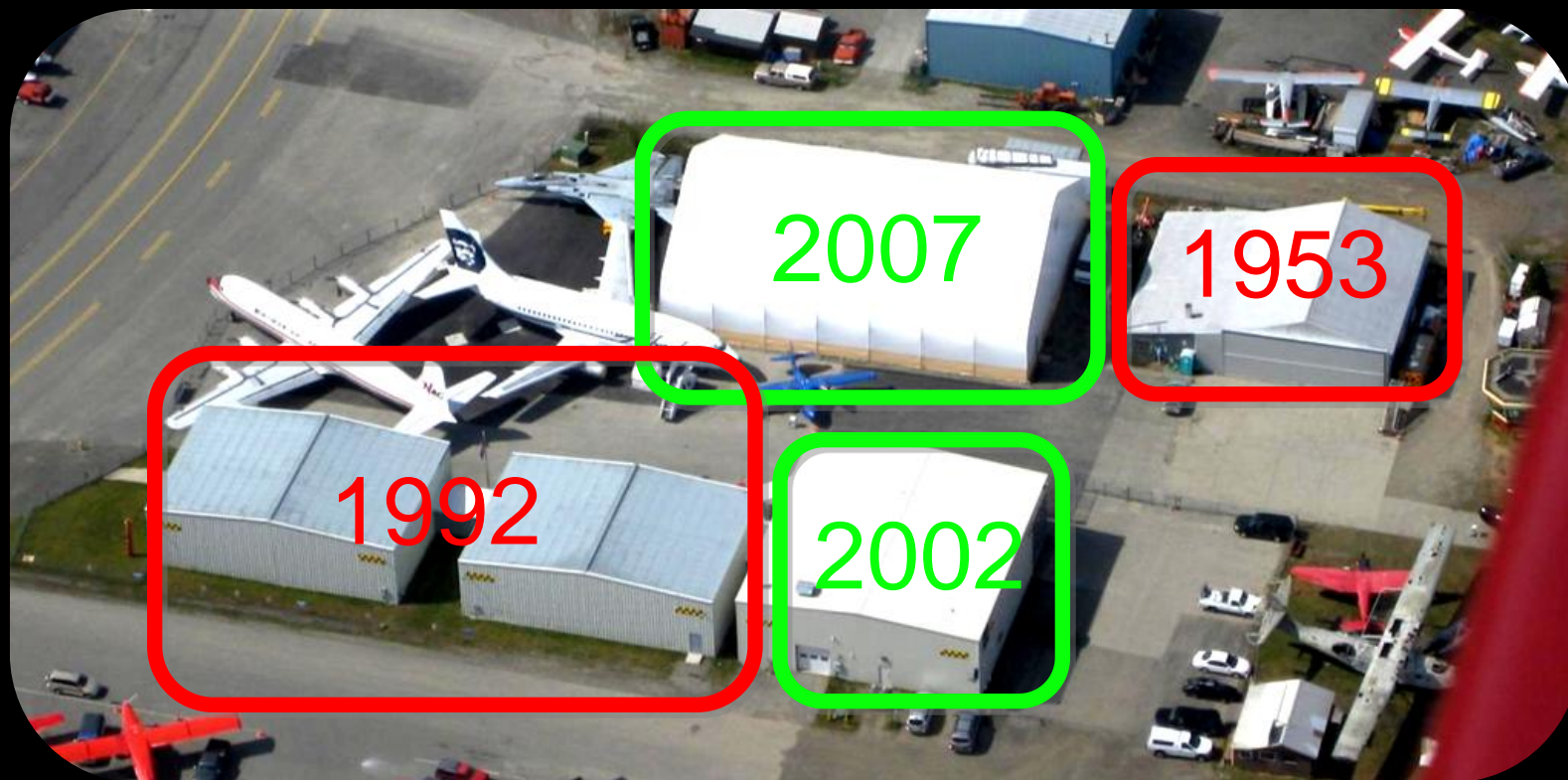


Initial Goals

- ◆ Reduce utility bill by 75%
- ◆ Alleviate UV producing lights within exhibit galleries



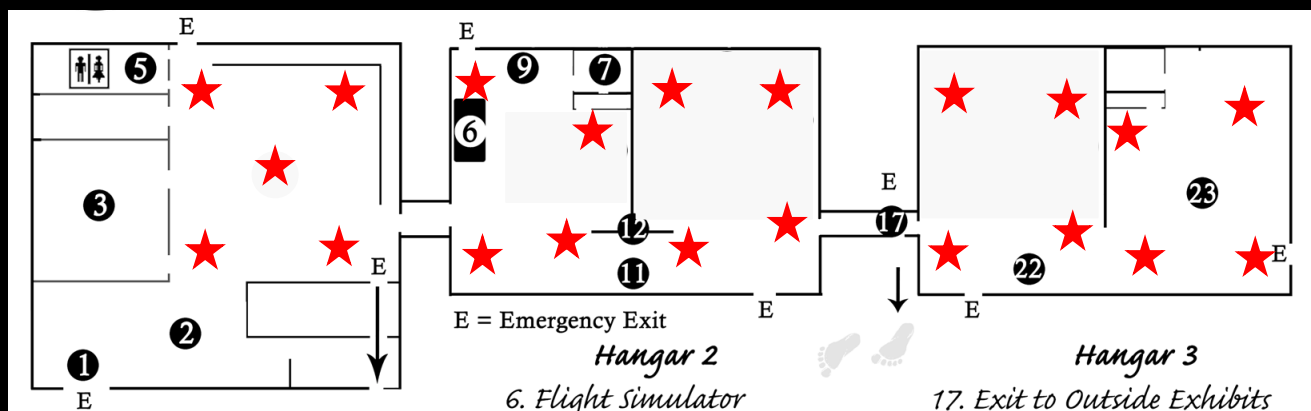
Energy Audit: Electric

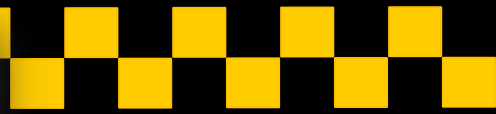




Documented Museum

- ◆ Mapped each gallery
- ◆ Took light meter readings and photos
 - Each corner & middle of each gallery
 - Used same camera settings for before & after lighting project





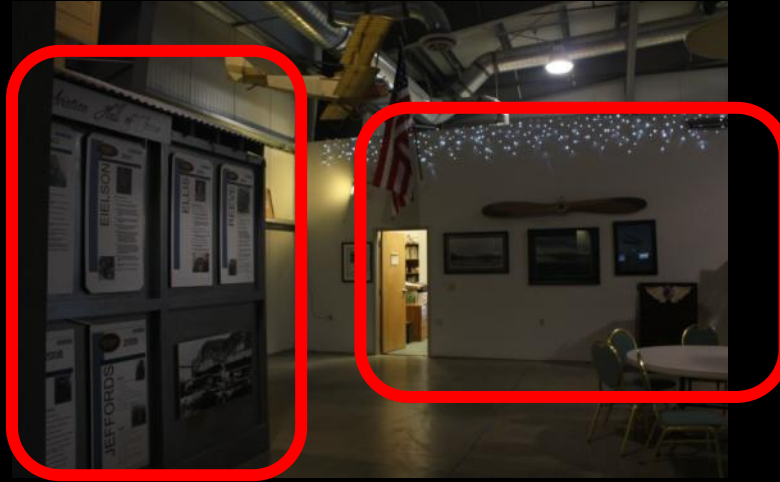
Gallery Lighting

- ◆ General Lighting: High Bay MH Lights
 - 28 Fixtures
 - 12,000 Watts/Hour
- ◆ New LED Lighting
 - Over 300 Fixtures
 - 3,100 Watts/Hour

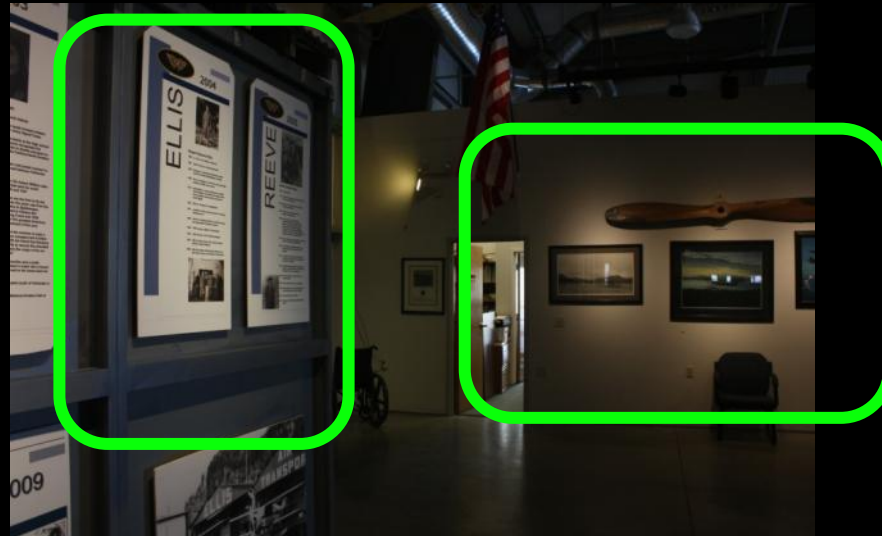


Pioneer Hall

◆ Before



◆ After





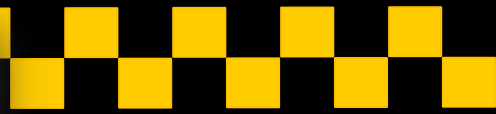
Rasmuson Hangar

◆ Before



◆ After





South Hangar

◆ Before



◆ After





Wien-Petersen Exhibit

- ◆ First exhibit case designed at AAM using LED lighting exclusively (inside & out)





Lighting: Wien Exhibit

1500 Watt Lighting Equivalent: LED lighting uses 165 Watts Total

Incandescent Lighting:

Without Timer:

(24hr Operation)\$2,500/year



LED Lighting:

Without Timer(24hr operation): \$275/year With Timer: \$138/year



Fun with Lights





More Fun with Lights





Weapons of Choice

◆ Lighting Fixtures



PAR38



PAR20



MR-16
GU-10
120-Volt



MR-16





Weapons of Choice

◆ Switches, Timers & Occupancy Sensors





Busting Myths

- ◆ LED Technology not mature enough
 - Wasn't 2 years ago: Is now
- ◆ LED's can't throw enough light
 - See previous slides
- ◆ LED color/temp too cool
 - PAR20 & PAR 30 bulbs were 3000K
 - PAR38 bulbs were 4000K
 - Used gels to get the PAR38s to 3000K



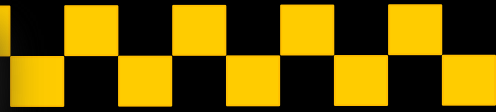
Mythbuster

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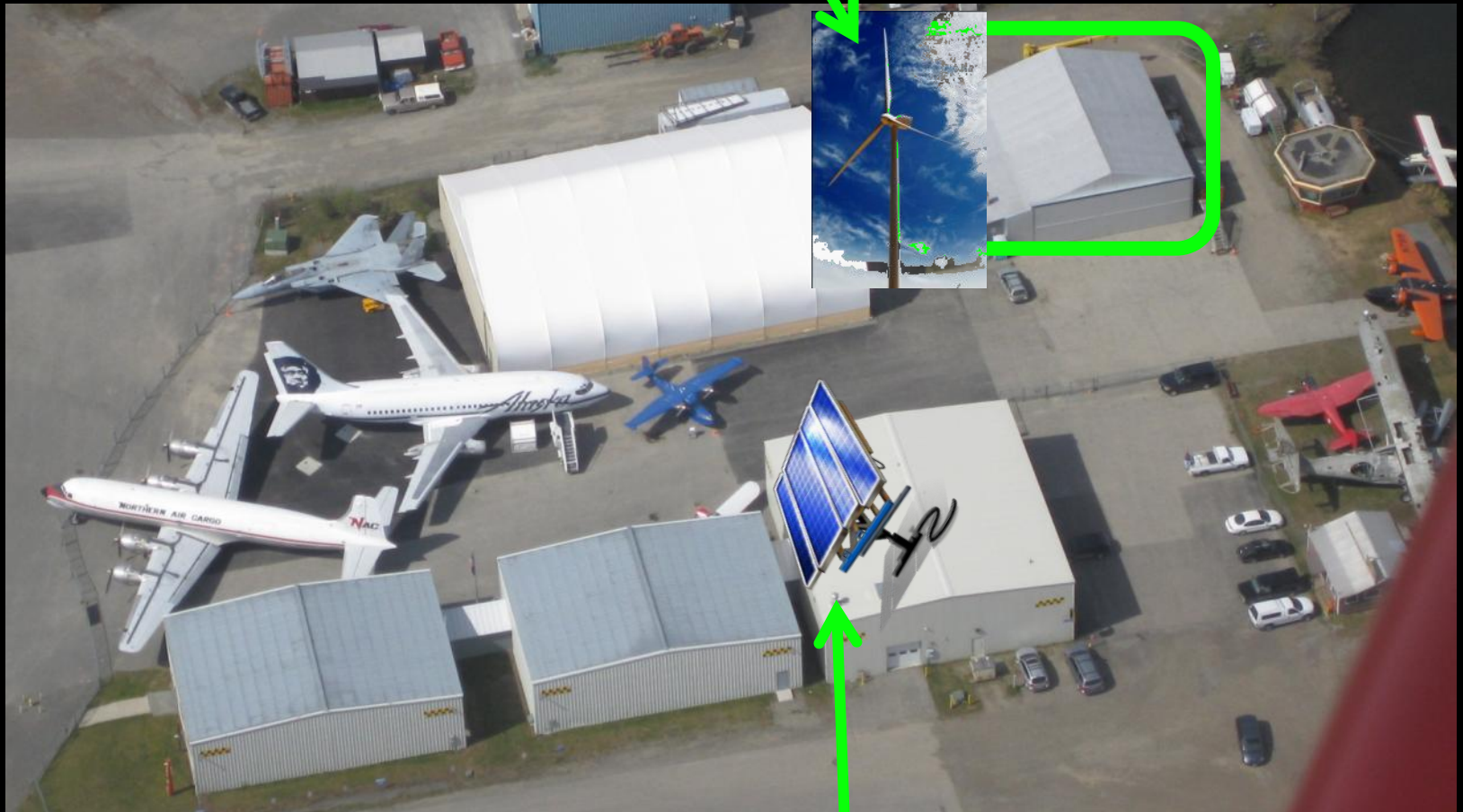
Law of U.C.

- ◆ Artifacts and exhibits are well lit
 - You can easily see the dirt & dust!
 - You can easily see where visitors have been “handling” the artifacts
- ◆ Floor areas are well lit
 - You can readily see how badly they need to be refinished!



Future Flight Plan

Wind Turbine



Solar Panels



Questions



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